

# Mine Rescue & Escape Training Laboratory

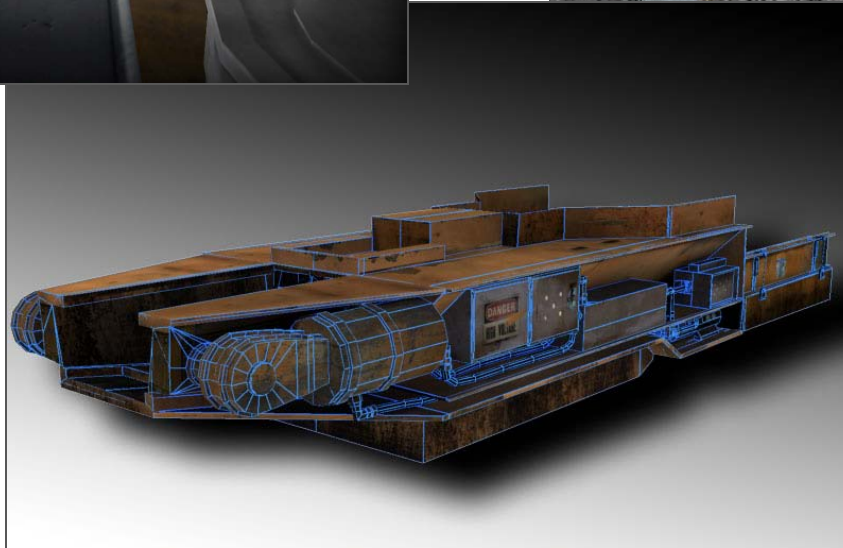
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Training Research and Development Team  
NIOSH/OMSHR

Prepared for the  
NIOSH Personal Protective Technology Program Stakeholder Meeting  
Hyatt Regency Pittsburgh Airport, March 29, 2011



# Creating Virtual Mine Sites



# Underground Coal Mine Map Reading Training



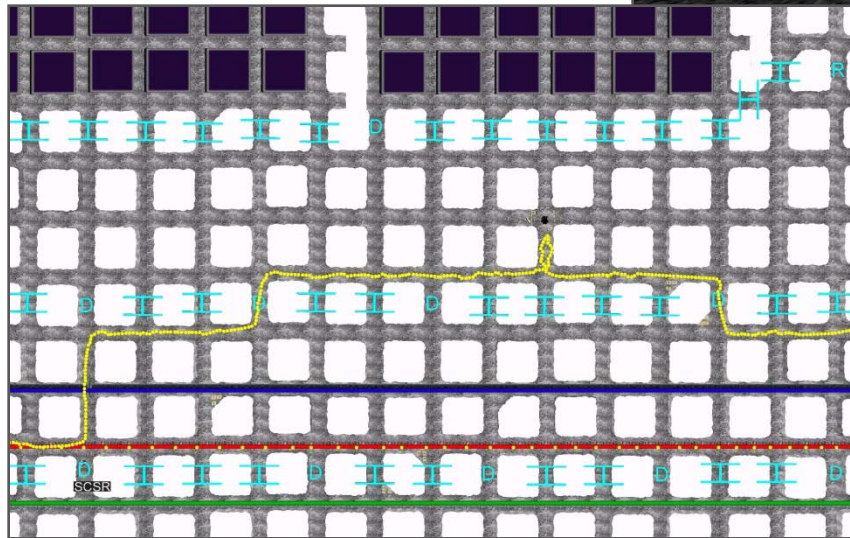
<http://www.cdc.gov/niosh/mining/products/product165.htm>





# Underground Coal Mine Map Reading Training

“Miners” give directions to individual trainee.



Overhead view of  
travel path for debriefing.

<http://www.cdc.gov/niosh/mining/products/product165.htm>





# Mine Evacuation Training



- Multiple trainees
- Networked together
- Can connect via internet



# Mine Evacuation Training

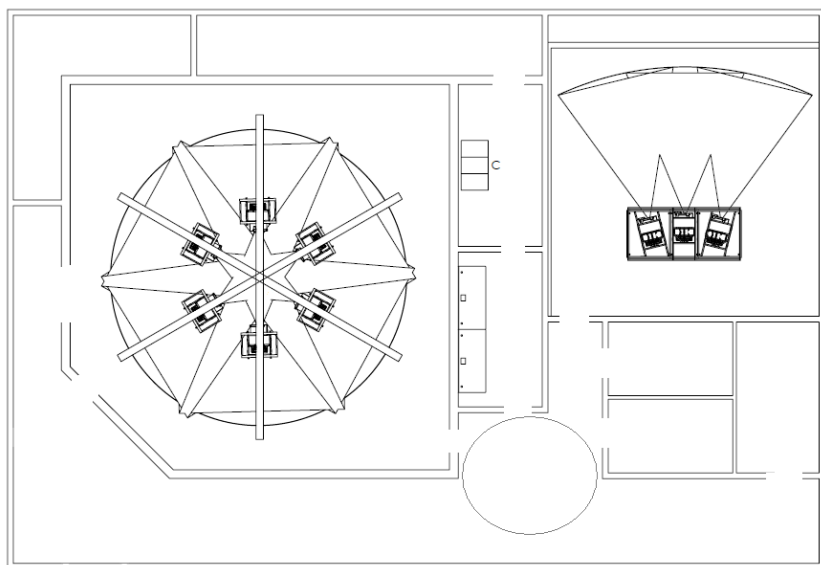


# Mine Rescue & Escape Training Laboratory

## Immersive Environments

Cylindrical screen  
10ft tall, 33ft diameter

Curved screen  
10 ft tall x 26 ft wide



## Immersive Display Systems

The National Institute for Occupational Safety and Health (NIOSH) chose Commercial Training Solutions to deliver a Mine Rescue and Escape Training (MRET) Laboratory with two immersive display systems (one 360 degree and one 120 degree system) and four training modules related to mine rescue and emergency escape.



Commercial Training Solutions - © 2010

- Stereoscopic projection
- Surround sound
- Interactive





# MRET Lab Construction Timeline



Jan – May 2011: building renovation

June – July 2011: equipment installation

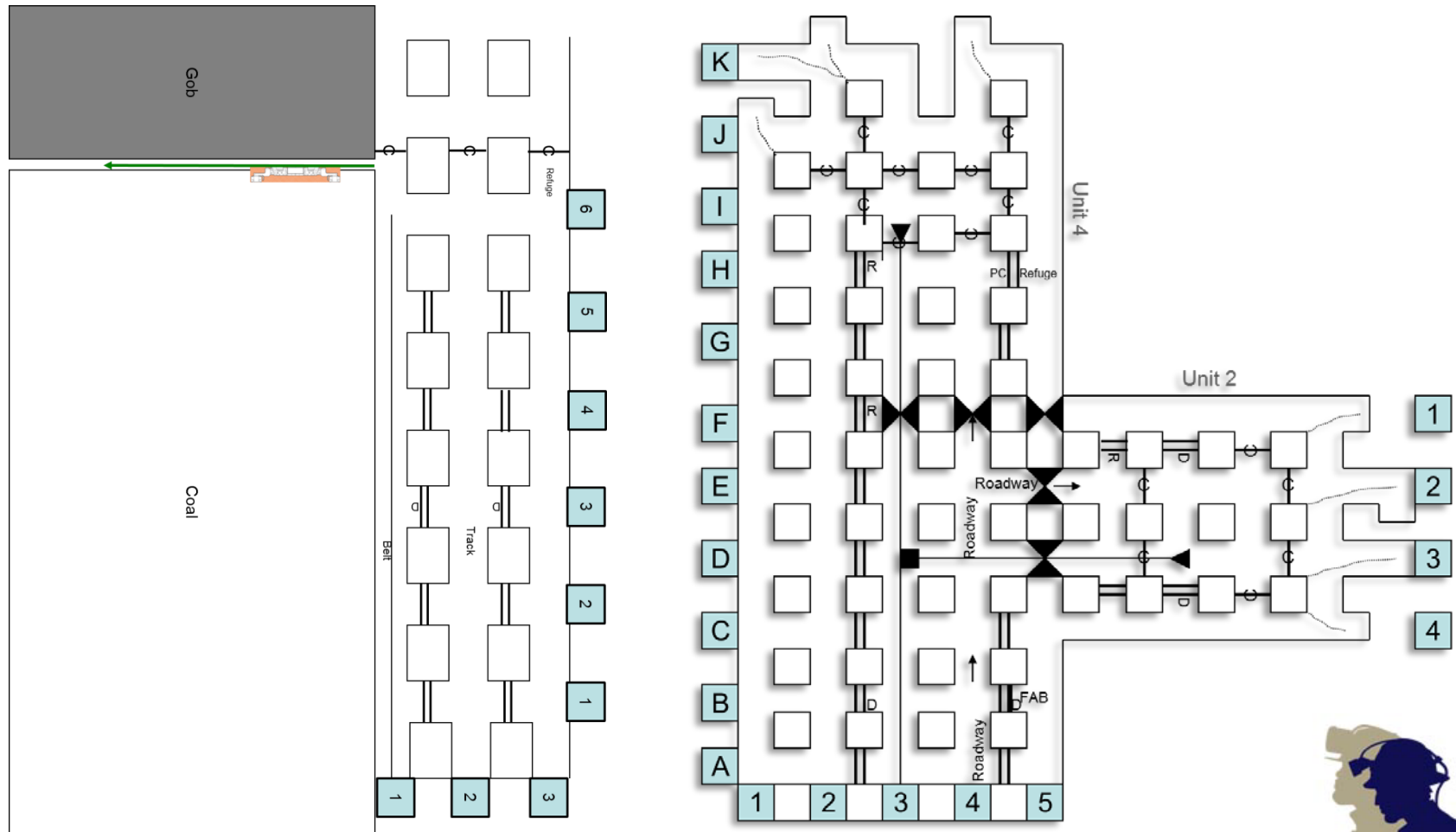
Aug – Sept 2011: system testing

**October 2011: virtual environments operational**



# MRET Lab

## Underground Coal Mine



# MRET Lab

## Modules – Mine Rescue



Graphic provided by Commercial Training Solutions, L.L.C. 2011



- Hands-on Simulation
- Lake Lynn Laboratory
- Virtual Simulation
- MRET Lab
- Comparable in complexity to mine rescue contest problems





# MRET Lab

## Training Module – BG4

- Benching a Virtual BG4
- 3D delivery to trainees
- Tasks
  - Teach or test sequencing
  - Conduct fault checks
  - Practice multiple error scenarios
- To be drafted by Fall 2011



For more information  
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The Office of Mine Safety and Health  
Research is a division of the National Institute  
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[www.hhs.gov](http://www.hhs.gov)

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